

WHAT IS CLAIMED IS:

Sub A1 1. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

at least two control means among a normal taking control means based on a normal taking mode for generating image pickup signals corresponding to one frame from said image pickup means, a forced wide dynamic range taking control means based on a forced wide dynamic range taking mode for forcing a generation of wide dynamic range, synthesized image, and an automatic wide dynamic range taking control means based on an automatic wide dynamic range taking mode for selectively generating wide dynamic range, synthesized image automatically on the basis of object information or information set for the image taking; and

means for selectively setting one image taking mode out of the taking modes respectively corresponding to the

two control means.

2. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

means for displaying as a suitability determining information of the synthesized image generating process at least one information out of information based on previously taken image data, information obtained before the taking of image, and information set on the image pickup apparatus before the taking of image that is required in determining whether a suitable wide dynamic range, synthesized image can be obtained.

3. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic

range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

means for determining the suitability to the generation processing of synthesized image of at least one information out of information based on previously taken image data, information obtained before the taking of image, and information set on the image pickup apparatus before the taking of image that is required in determining whether a wide dynamic range, synthesized image can be suitably generated; and

display means for displaying a result of determination at the determination means.

4. The image pickup apparatus according to claim 3, wherein said display means displays information determined as unsuitable as N.G. information when it is determined as unsuitable by said determination means.

5. The image pickup apparatus according to claim 3, wherein said display means displays a result of determination at said determination means as a numerical parameter of information and at the same time displays a suitable range for synthesizing process of the information

numeric parameter.

6. The image pickup apparatus according to claim 4, wherein said display means displays a result of determination at said determination means as a numerical parameter of information and at the same time displays a suitable range for synthesizing process of the information numeric parameter.

7. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

at least two control means among a normal taking control means based on a normal taking mode for generating image pickup signals corresponding to one frame from said image pickup means, a forced wide dynamic range taking control means based on a forced wide dynamic range taking mode for forcing a generation of wide dynamic range, synthesized image, and an automatic wide dynamic range

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taking control means based on an automatic wide dynamic range taking mode for selectively generating wide dynamic range, synthesized image automatically on the basis of object information or information set for the image taking;

means for selectively setting one image taking mode out of the taking modes respectively corresponding to the two control means;

suitability determination means for determining whether information obtained as conditions of generation processing for the generation of wide dynamic range, synthesized image is the information suitable for the generation processing of wide dynamic range, synthesized image; and

display means for displaying "inconsistency" when the taking mode set at said mode setting means and the result of determination made at said suitability determination means are not suitable to each other.

8. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different

exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

means for displaying an exposure amount ratio of the image signals corresponding to a plurality of frames of different exposure amounts.

9. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

means for correcting exposure amount of said image signals corresponding to a plurality of frames of different exposure amounts; and

display means for displaying operation status of the means for correcting exposure amount.

10. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different

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exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

means for detecting motion of object image;

means for correcting amount of motion when the motion amount detected at the motion detection means is within an allowable range for correction; and

display means for displaying operation status of the motion amount correction means.

11. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

at least two control means among a normal taking control means based on a normal taking mode for generating image pickup signals corresponding to one frame from said image pickup means, a forced wide dynamic range taking

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control means based on a forced wide dynamic range taking mode for forcing a generation of wide dynamic range, synthesized image, and an automatic wide dynamic range taking control means based on an automatic wide dynamic range taking mode for selectively generating wide dynamic range, synthesized image automatically on the basis of object information or information set for the image taking;

means for selectively setting one image taking mode out of the taking modes respectively corresponding to the two control means; and

display means for displaying ON/OFF status of the generation processing of wide dynamic range, synthesized image on the basis of the taking mode set at the mode setting means.

12. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

display means for displaying synthesized image

outputted from said means for generating wide dynamic range, synthesized image.

13. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

at least two control means among a normal taking control means based on a normal taking mode for generating image pickup signals corresponding to one frame from the image pickup means, a forced wide dynamic range taking control means based on a forced wide dynamic range taking mode for forcing a generation of wide dynamic range, synthesized image, and an automatic wide dynamic range taking control means based on an automatic wide dynamic range taking mode for selectively generating wide dynamic range, synthesized image automatically on the basis of object information or information set for the image taking;

means for selectively setting one image taking mode out of the taking modes respectively corresponding to the

two control means;

suitability determination means for determining whether information obtained as the conditions of generation processing for the generating wide dynamic range, synthesized image is the information suitable for the generation processing of wide dynamic range, synthesized image; and

means for directing a change in the setting of parameter of said information or in the setting of taking mode or directing a retake when the taking mode set at said mode setting means and the result of determination made at said suitability determination means are not suitable to each other.

14. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

means for displaying brightness information of a desired portion of object together with an image of the

object.

15. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

means for designating a plurality of desired regions of a displayed image;

means for obtaining luminance information of the regions designated by the designating means; and

means for adjusting exposure amounts of said plurality of images so as to achieve suitable luminance levels of the respectively obtained luminance information at the time of generating a wide dynamic range, synthesized image.

16. The image pickup apparatus according to claim 15, wherein said means for designating a plurality of desired regions of image includes means for marking by setting and locking a previously set, framed narrow region on a target

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object in the image.

17. An image pickup apparatus comprising: image pickup means capable of taking images of the same object at a plurality of different exposure amounts to generate image signals corresponding to a plurality of frames of different exposure amounts; and means for generating wide dynamic range, synthesized image by synthesizing image signals corresponding to a plurality of frames of different exposure amounts obtained by the image pickup means, said image pickup apparatus further comprising:

display means for respectively displaying a plurality of images of different exposure amounts; and

means for setting the exposure amounts of the images displayed by the display means to desired exposure amounts, the dynamic range of the synthesized image being set on the basis of the exposure amounts respectively set for said plurality of images.

18. An AE device in image pickup apparatus comprising: means for controlling exposure amount to an image pickup device;

control means for setting a plurality of different exposure amounts to the means for controlling exposure amount;

means for acquiring a plurality of output information based on the plurality of exposure amounts set from the image pickup device;

means for generating synthesized output information of wide dynamic range by synthesizing the plurality of acquired output information; and

means for deciding exposure amounts from the synthesized output information.